NSK CASE STUDY

INDUSTRY

PULP AND PAPER

APPLICATION

PAPER MACHINE - DRYER CYLINDER

COST SAVINGS: $1,077,840

A paper mill was experiencing poor bearing performance and requested an Engineering review. In evaluating the installed bearings, NSK discovered the initiation of fracture damage in the bearing inner rings. This is very characteristic of cases where there is high temperature generated by the operation of a machine. To improve performance, NSK's Tough and Long Life Spherical Roller Bearings were recommended and installed with an original Mean Time Between Failure (MTBF) of more than 10 years of operation.

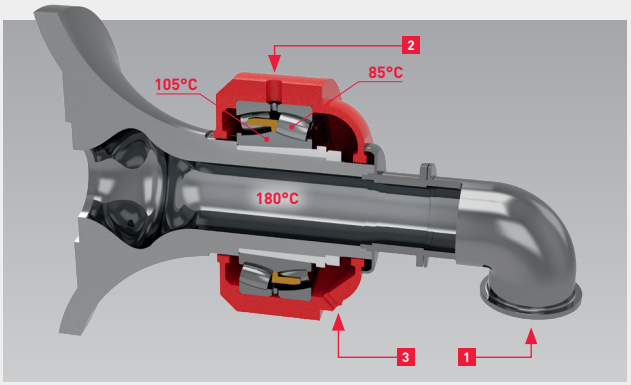
This solution generated a significant cost savings for the customer compared to the traditional bearing previously used. In addition, the TL Technology was approved by the customer for installation in additional positions across the paper machine.

RELEVANT FACTS

- Critical equipment
- High turnover
- High applied load
- Contamination from non-lubricating moisture
- High operating temperature

VALUE PROPOSALS

- Application review
- Increased reliability of the rolls
- Presentation of NSK proprietary TL material technology
- Increased MTBF of the asset



Pictured: Example of a dryer cylinder roll structure showing the typical temperatures present. 1) Steam, 2) Lubrication oil, 3) Oil return

PRODUCT HIGHLIGHTS

NSK's TL series spherical roller bearings are ideally designed for paper machine dryer roll applications - and wherever elevated temperatures prevail - optimizing machine uptime and efficiency with superior resistance to inner ring fracture and exceptional dimensional stability at high temperatures.

- Optimized, high capacity internal design
- Inner rings manufactured with proprietary TL material composition and heat-treatment process
- Superior dimensional stability as high as 200°C
- High strength resistance to hoop stress and inner ring cracking
- High raceway surface hardness promotes a wear resistant, long service life
- Dramatically reduced incidents of bearing failure translate into extended uptime, reduced maintenance costs and increased machine throughput

NSK TL-Series Spherical Roller Bearing

COST-SAVING BREAKDOWN

BEFORE	COST	NSK SOLUTION	COST
Product Cost	$55,200	Product Cost	$17,600
Maintenance	$11,520	Maintenance	$1,080
Loss of Production	$1,152,000	Loss of Production	$144,000
Other Cost	$10,000	Other Cost	$6,000
Engineering	$17,800	Engineering	–
Total	**$1,246,520**	**Total**	**$168,680**
		TOTAL COST SAVING	$1,077,840

YOUR PARTNER FOR MACHINE OPTIMIZATION

Our AIP Added Value Program is based around a simple proposition: 'improvement pays'.
By working with you throughout the AIP Value Cycle, we will help you achieve improvements in machine reliability, productivity and performance, all of which carry a tangible and measurable cost benefit – and we have the tools to prove it! That's what we mean by **improvement pays**.

aip NSK experts